

## Development tool goes multisite, multiplatform, and multiprocessor

**R**ECOGNIZING THAT BUSINESS-acquisition strategies sometimes require development teams to spread over multiple continents, Texas Instruments has introduced Code Composer Studio

Version 2.0, which adds supports for integrated project management with multisite connectivity. The product can provide source control across PC and Unix platforms as well as improved debugging for single-processor and multiprocessor designs. Distributed teams can keep their tools in sync; an update adviser automatically manages and provides access to the latest tools,

drivers, and updates via the Web. New emulation capabilities using real-time data exchange can support mixed, simultaneous debugging for two to 50 C5x and C6x DSP devices running together. Full C++ support joins the list of choices for C, UML, Matlab, and VAB programming. Other enhancements include code-profiling features, a symbol browser, an improved

watch-debugging window, DSP/BIOS real-time simulator analysis, a version-control interface to integrate popular source-control programs, and a 100% performance improvement in generated code for the C55x processor from the initial compiler release.

A new chip-support library, compatible with C and C++ source code, integrates with the DSP/BIOS kernel and provides APIs to control peripheral configuration and use, including support for PCI and Xbus. The development tool also integrates the new version of the DSP-algorithm

standard and includes a new set of APIs for algorithms that use DMA. Code Composer Studio Version 2.0 is available for Windows 98, NT, and 2000 platforms and costs \$2995 per copy.

—by Robert Cravotta

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## Complex-IC packages get simple thermal models

WITH THE LATEST RELEASE of its Flopack software, thermal-simulation vendor Flomerics enables the use of "compact models" for VLSI packages, such as PQFPs and PLCCs. Getting accurate modeling of thermal performance of large ICs is difficult because substantial variations occur, even within a single package style. Such variations can be in internal construction, die size, lead-frame and die attachment, bond-wire configuration, and other parameters that affect thermal behavior. If your package has high dissipation, these parameters can affect the accuracy of predicting the heat's direction and the maximum temperature your design can withstand.

The compact-model format represents a package as a mesh of interconnected thermal resistances. The compact-model mesh does not correspond directly to the physical structure of any device but is a standard format that, when you give it a set of parametric values that characterize a specific device, models that device to within 7 to 10% of measured performance. In contrast, in a simple two-resistor, thermal-resistance model, one resistance is between the die, or heat source, and substrate, and one is to the package's top surface. With that simple level of modeling, you can expect modeling errors of at least 25% compared with real-world behavior.

In Flomerics' vision, semiconductor vendors will develop the compact, or Delphi, models, named after the program in which they were developed, and make the compact-model

parameter set part of their data sheets, allowing you to perform thermal analysis but without knowing the details of their devices' construction. Flopack includes a "wizard"-style data-entry system that captures all the required information about package construction and embeds knowledge about package behavior that has been gathered over the life of the program, so that if you lack detailed knowledge of some aspect of the package's construction, default assumptions still give good results. Flopack also quantifies the accuracy you can expect from a model: It places its own output in several preset thermal scenarios to calculate an overall confidence level for that model.

You can run Flopack yourself and develop your own thermal models, or you can rely on those from your device supplier. The full Delphi models for PQFPs and PLCC packages now plug into the Flotherm computational-fluid-dynamics-analysis package, so that you can perform thermal-analysis runs with them. Other refinements in this release include the ability to model nonuniform heat distribution across a semiconductor die within a package for highly accurate dissipation modeling or as part of a reliability analysis. Prices for annual licenses for Flopack start at \$3500 (or 100 runs; you can use the produce on a pay-per-use basis). Prices for annual licenses for Flotherm start at \$19,500.—by Graham Prophet

►Flomerics, 1-508-357-2012, [www.flomerics.com](http://www.flomerics.com).

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